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Assumptions to the Annual Energy Outlook 2009

Table 1.1. Summary of *AEO2009* Cases

Case name	Description	Integration mode
Reference	Baseline economic growth (2.5 percent per year from 2007 through 2030), world oil price, and technology assumptions. Complete projection tables in Appendix A.	Fully integrated
Low Economic Growth	GDP grows at an average annual rate of 1.8 percent from 2007 through 2030. Other energy market assumptions are the same as in the reference case. Partial projection tables in Appendix B.	Fully integrated
High Economic Growth	GDP grows at an average annual rate of 3.0 percent from 2007 through 2030. Other energy market assumptions are the same as in the reference case. Partial projection tables in Appendix B.	Fully integrated
Low Oil Price	More optimistic assumptions for economic access to non-OPEC resources and the behavior of the OPEC than in the reference case. World light, sweet crude oil prices are $50 per barrel in 2030, compared with $130 per barrel in the reference case (2007 dollars). Other assumptions are the same as in the reference case. Partial projection tables in Appendix C.	Fully integrated
High Oil Price	More pessimistic assumptions for economic access to non-OPEC resources and OPEC behavior than in the reference case. World light, sweet crude oil prices are about $200 per barrel (2007 dollars) in 2030. Other assumptions are the same as in the reference case. Partial projection tables in Appendix C..	Fully integrated
Residential: 2009 Technology	Future equipment purchases based on equipment available in 2009. Existing building shell efficiencies fixed at 2009 levels. Partial projection tables in Appendix D.	With commercial
Residential: High Technology	Earlier availability, lower costs, and higher efficiencies assumed for more advanced equipment. Building shell efficiencies for new construction meet ENERGY STAR requirements after 2016. Partial projection tables in Appendix D.	With commercial
Residential: Best Available Technology	Future equipment purchases and new building shells based on most efficient technologies available by fuel. Building shell efficiencies for new construction meet the criteria for most efficient components after 2009. Partial projection tables in Appendix D.	With commercial
Commercial: 2009 Technology	Future equipment purchases based on equipment available in 2009. Building shell efficiencies fixed at 2009 levels. Partial projection tables in Appendix D.	With residential

Table 1.1. Summary of *AEO2009* Cases (cont.)

Case name	Description	Integration mode
Commercial: HighTechnology	Earlier availability, lower costs, and higher efficiencies assumed for more advanced equipment. Building shell efficiencies for new and existing buildings increase by 8.8 and 6.3 percent, respectively, from 2003 values by 2030. Partial projection tables in Appendix D.	With residential
Commercial: Best Available Technology	Future equipment purchases based on most efficient technologies available by fuel. Building shell efficiencies for new and existing buildings increase by 10.5 and 7.5 percent, respectively, from 2003 values by 2030. Partial projection tables in Appendix D.	With residential
Industrial: 2009 Technology	Efficiency of plant and equipment fixed at 2009 levels. Partial projection tables in Appendix D.	Standalone
Industrial: High Technology	Earlier availability, lower costs, and higher efficiencies assumed for more advanced equipment. Partial projection tables in Appendix D.	Standalone
Transportation: Low Technology	Assumes advanced technologies are more costly and less efficient then in reference case. Partial projection tables in Appendix D	Standalone
Transportation: High Technology	Assumes advanced technologies are less costly and more efficient then in reference case. Partial projection tables in Appendix D.	Standalone
Electricity: Low Nuclear Cost	New nuclear capacity assumed to have 25 percent lower capital and operating costs in 2030 than in the reference case. Partial projection tables in Appendix D.	Fully Integrated
Electricity: High Nuclear Cost	Costs for new nuclear technology assumed not to improve from 2009 levels in the reference case. Existing nuclear plants are assumed to retire after 55 years. Partial projection tables in Appendix D.	Fully Integrated
Electricity: Low Fossil Technology Cost	Capital and operating costs for all new fossil-fired generating technologies improve by 25 percent in 2030 from reference case values. Partial projection tables in Appendix D.	Fully Integrated
Electricity: High Fossil Technology Cost	Costs for new advanced fossil generating technologies assumed not to improve over time from 2009. Partial projection tables in Appendix D.	Fully Integrated
Renewable Fuels: High Renewable Technology Cost	New renewable generating technologies assumed not to improve over time from 2009. Partial projection tables in Appendix D.	Fully integrated
Renewable Fuels: Low Renewable Technology Cost	Levelized cost of energy for non-hydropower renewable generating technologies declines by 25 percent in 2030 from reference case values. Partial projection tables in Appendix D.	Fully integrated
Renewable Fuels: Production Tax Credit Extension	PTC for certain renewable generation is assumed to be extended to projects constructed through 2016.	Fully integrated
Oil and Gas: Rapid Technology	Cost, finding rate, and success rate parameters adjusted for 50-percent more rapid improvement than in the reference case. Partial projection tables in Appendix D.	Fully integrated
Oil and Gas: Slow Technology	Cost, finding rate, and success rate parameters adjusted for 50-percent slower improvement than in the reference case. Partial projection tables in Appendix D.	Fully integrated
Oil and Gas: High LNG Supply	LNG imports exogenously set to a factor times the reference case levels from 2010 forward, with remaining assumptions from the reference case. The factor starts at 1.0 in 2010 and increases linearly to 5.0 by 2030. Partial projection tables in Appendix D.	Fully Integrated

Table 1.1. Summary of *AEO2009* Cases (cont.)

Case name	Description	Integration mode
Oil and Gas: Low LNG Supply	LNG imports held constant at 2009 levels, with remaining assumptions from the reference case. Partial projection tables in Appendix D.	Fully Integrated
Oil and Gas: ANWR	The Arctic National Wildlife Refuge (ANWR) in Alaska is opened to Federal oil and natural gas leasing, with remaining assumptions from the reference case. Partial projection tables in Appendix D.	Fully Integrated
Oil and Gas: No Alaska Pipeline	A natural gas pipeline from the North Slope of Alaska to the Lower 48 States is assumed not to be built during the projection period.	Fully Integrated
Coal: Low Coal Cost	Productivity growth rates for coal mining are assumed to be higher than in the reference case, and coal mining wages, mine equipment, and coal transportation rates are assumed to be lower. Partial projection tables in Appendix D.	Fully Integrated
Coal: High Coal Cost	Productivity growth rates for coal mining are assumed to be lower than in the reference case, and coal mining wages, mine equipment, and coal transportation rates are assumed to be higher. Partial projection tables in Appendix D.	Fully integrated
Integrated 2009 Technology	Combination of the residential, commercial, and industrial 2009 technology cases; and the electricity high fossil technology cost, high renewable technology cost, and high nuclear cost cases. Partial projection tables in Appendix D	Fully integrated
Integrated High Technology	Combination of the residential, commercial, industrial, and transportation high technology cases; and the electricity low fossil technology cost, low renewable technology cost, and low nuclear cost cases. Partial projection tables in Appendix D.	Fully integrated
Electricity: Frozen Plant Costs	Base overnight costs for all new electric generating technologies are assumed to be frozen at 2012 levels. Cost decreases due to learning still occur, but no declines in costs due to commodity price changes are assumed.	Fully Integrated
Electricity: High Plant Capital Costs	Base overnight costs for all new electric generating technologies are assumed to continue increasing through-out the projection, reaching 25 percent above 2012 costs in 2030. Cost decreases due to learning can still occur and may partially offset these increases.	Fully Integrated
Electricity: Falling Plant Capital Costs	Base overnight costs for all new electric generating technologies are assumed to fall more rapidly than in the reference case, reaching 25 percent below the reference case costs in 2030.	Fully Integrated
No GHG Expectations	Assumes that a greenhouse gas emission reduction policy is not enacted and markets do not alter their investment decisions in anticipation of such a policy.	Fully Integrated
Cap and Trade	Assumes a greenhouse gas emission reduction policy similar to that proposed in S.2191, the Lieberman-Warner Climate Security Act of 2007 is implemented	Fully Integrated
No 2008 Tax Legislation	Removes EIEA2008 tax legislation from reference case.	Fully Integrated